CLAIMS.

1. A method of diagnosing, in a network comprising two devices connectable by a
link, the type of failure of the connection between the devices, said
method comprising
connecting the two devices together at least one of the devices including a plurality of
registers, each register being adapted to store data about one or more types of said
failure,
running an auto-negotiation sequence,
detecting said failure and passing signals relating to that failure to the relevant
register(s),
interrogating the or each register, and
determining the type of said failure.

2. A method as claimed in claim 1 in which the step of determining the type of
said failure includes the step of determining the data in the relevant register(s) and from
said data, indicating the type of said failure and/or a proposed course of action.

3. A method as claimed in claim 1 in which there is provided a visual display unit
and the step of determining the type of said failure includes the step of determining the
data in the relevant register(s) and from said data, indicating the type of said failure
and/or a proposed course of action on said visual display unit.

4. A method as claimed in claim 1 in which said failure comprises a loss of light.

5 A method as claimed in claim 1 in which said failure comprises a bit/word
alignment failure.

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6.   A method as claimed in claim 1 in which said failure comprises a loss of synchronisation during auto-negotiation.

7.   A method as claimed in claim 1 in which said failure comprises an auto-negotiation protocol hang during base page exchange.

8.   A method as claimed in claim 1 in which said failure comprises an auto-negotiation protocol hang during next page exchange.

9.   A method as claimed claim 1 in which said failure comprises an auto-negotiation protocol (repeated) restart due to initiation of a "break link".

10.   A method as claimed in claim 1 in which the steps of interrogation and of determining are controlled by a program on a device in the network.

11.   A method as claimed in claim 1 in which the steps of interrogation and of determining are controlled by a program on one of said devices.

12.   A method as claimed in claim 1 in which said detection step is carried out by signal detector logic in level B1 of the OSI protocol stack of one of said devices.

13.   A method as claimed in claim 12 in which the link is a fibre optic signal and light is detected by a transceiver and the detector logic in a sub level of level B1 of the OSI protocol stack checks for an adequate power level on the light received at the transceiver.

14.   A method as claimed in claim 12 in which said signal detector logic in a sub level of level B1 of the OSI protocol stack of one of said devices deals with clock recovery, comma alignment and receive synchronisation so as to check the received signal frequency, encoding integrity and correct alignment of received signals.

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15.   A method as claimed in claim 12 in which said signal detector logic in a sub level of level B1 of the OSI protocol stack of one of said devices includes a bit error counter to count symbol errors.

5   16.   A method as claimed in claim 15 in which said bit error counter is set at regular intervals, to provide bit error rate calculations.

17.   A method as claimed in claim 12 in which said signal detector logic in a sub level of level B1 of the OSI protocol stack of one of said devices includes an auto
10   negotiation state machine which deals with the exchange of one or more pages of information between the two devices, handles link restarts by the link partner, and reports the link state and hangs.

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